2.2.9.6. Design codes and standards employed; NFPA and ASME were used as applicable.

2.2.9.7. Material and energy balances for processes built after May 26, 1992; and, Available from distillery process engineer and for Modified B, the R&D department.

2.2.9.8. Safety systems (e.g. interlocks, detection or suppression systems) are included in process safety information and SOPs.

2.2.10. Documentation exists and is accessible to show that the distillation process was designed and constructed in accordance with recognized and accepted good engineering practices (RAGAGEPs)

Both processes are maintained in accordance with NFPA and ASME VIII requirements. Following is a list of RAGAGEPs potentially applicable to the processes and followed as applicable:

Design of storage vessels and related piping is addressed in:

- API Std 650 Welded Steel Tanks for Oil Storage
- API Std 620 Recommended Rules for Design and Construction of Large, Welded, Low Pressure Storage Tanks
- API Std 2000 Venting Atmospheric and Low Pressure Storage Tanks
- ASME Boiler and Pressure Vessel Code, Section VIII
- Miscellaneous NFPA guidelines
- Design guidelines and recommended practices provided by industrial insurers (FM, IRI).

Safety design considerations are:

- Pressure/vacuum relief valves (including conservation vents for atmospheric tanks) and relief discharge venting
- Fire relief and protection, including fire loops and monitors, protective sprays, foam application, and flame arresters
- Foundations, fabrication techniques and anchorages
- Materials of construction and corrosion
- Design considerations for related pipe work and fittings including stresses due to movement, expansion/contraction, vibration, connections, valves, and layout (see Chapter 6, Piping Systems)
- Selection of ancillary equipment including pumps, compressors, vaporizers, etc.
- Consideration of the range of operations as well as nonoperational periods such as commissioning, decommissioning, unit shutdowns, and tank cleaning.

2.2.10.1. Specific piping standards not applied to process piping except in selection of compatible materials.

2.2.10.2. The design codes and specifications for the Propylene Oxide process have been compiled as below.

Equipment	Design Code	
Propylene Oxide Bulk Tank	ASME Code Sect. VIII, DIV. 1, 1986 ed *Ref: Letter from Shamrad Boiler Company, Inc., Dated Sep 28, 1988 and Form U-1A, Dated July 10, 1989.*	
Propylene Oxide Day Tank	ASME Code Sect. VIII, DIV. 1, 1986 ed *Ref: Letter from Shamrad Boiler Company, Inc., Dated Sep 28, 1988.*	
Transfer Pumps	Design specifications are available. *Ref: PSI Binder, Compiled by Lamb Group, LLC, January 2002.*	
PRVs	Design specifications are available. *Ref: PSI Binder, Compiled by Lamb Group, LLC, January 2002.*	
Pipe, Fittings, Flanges, etc.	2" NPS and Smaller *Ref: Specifications for Propylene Oxide Storage and Transferal System, March 17, 1989, Bibb & Associates, Inc.*	2-1/2" NPS and Larger *Ref: Specifications for Propylene Oxide Storage and Transferal System, March 17, 1989, Bibb & Associates, Inc.*
Pipe (Carbon Steel)	ASTM A1120, A53 Gr B	ASTM A1120, A53 Gr B
Fittings	ASTM A 47GR 32510	ASTM A234 WPB
Flanges	ASTM A181 GR 1	ASTM A181 GR 1 or A 105
Bolts & Nuts (Carbon Steel)	ASTM A 307 GR B, ANSI B1.1	ASTM A 307 GR B, ANSI B1.1

3. Process Hazard Analysis

3.1. The initial PHA was completed for Modified B on October 21, 2003 and for the Distillery on November 3, 2003. Re-validations are scheduled accordingly.

3.2. HAZOP technique was used to complete the PHAs.

3.3. PHAs are kept current, and on file in the EHS Department.

3.4. PHAs are conducted with cross functional teams consisting of at least an EHS manager, operations shift manager and area operator. Where necessary, other expertise shall be included including engineering, controls, or maintenance. PHA leaders are trained in the specific methodology used.

3.5. PHA findings are addressed through scheduling and follow up by EHS staff.

3.6. The PHAs are updated and revalidated at least every five years.

3.7. PHAs are retained for the life of the process.

4. Operating Procedures

4.1. Standard Operating Procedures (SOPs) are written and provided for operations. SOPs are reviewed and certified annually. SOPs for PSM are located on the EHS MGP&ME Website. MGPI employees can use this tool to ensure that any SOP is up-to-date. No physical work is done by MGPI employees. Hence, no SOP for the operation. Maintenance will have a monitor calibration included in the Mechanical Integrity Portion of the program.

4.2. Steps for each operating phase: